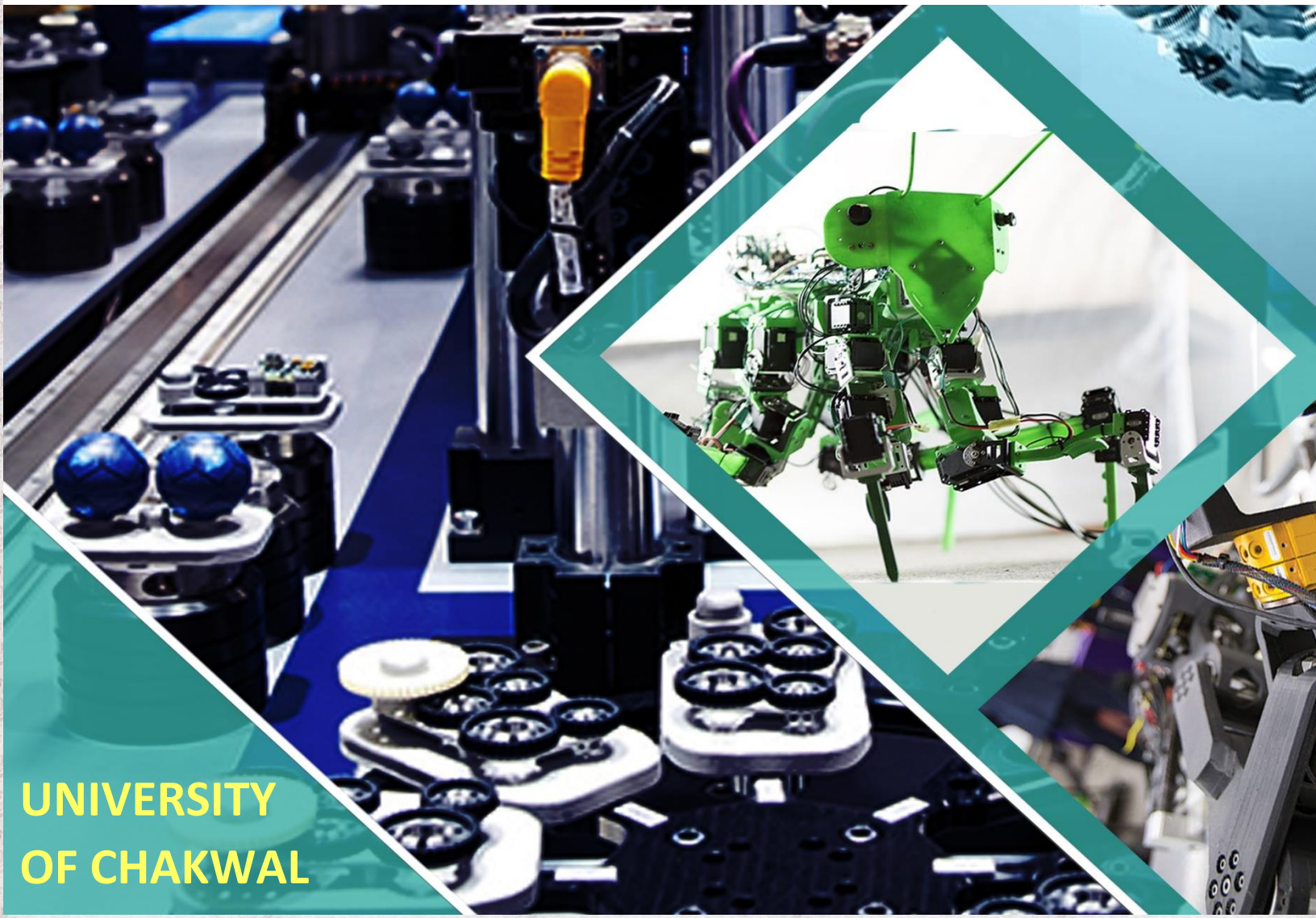
ROBOWAL



UNIVERSITY
OF CHAKWAL

Prof. Dr. Mohammad Bilal Khan
Vice Chancellor University of Chakwal

"On behalf of the students and staff at the University of Chakwal (UOC), I cordially welcome all of you to a newly established yet highly aspiring educational institution of the Punjab. We are optimistic that each and every entrant will be fascinated with the commitment, passion, resolution and enthusiasm by all the functionaries of the University."

University of Chakwal, Engineering campus also contributed laudable services to the field of Engineering and the legacy continues. University of Chakwal would provide a conducive enjoinment to young aspirants so that they could nurture their abilities and harness their creative skills to become future leaders.

I assure you that this institution would provide a great platform to encourage quality education, promote research and innovation-based activities while employing automation and digitalization tools.

Engr. Dr. Aqib Mashood Khan Chairman
Department of Mechatronics Engineering
University of Chakwal

Welcome to Mechatronics engineering at UOC. Our graduates work in almost every technology-based industry: including robotics automation, instrumentation, manufacturing, automotive, space and aerospace, bioengineering, chemical and textiles. Our goal for undergraduate students is to give them a high-quality engineering education that includes hands-on experience. Each of our faculty members is ready and willing to work in their research specialty with capable students on individual projects.
We strive to ensure that all our students have a strong education with teaming and leadership skills, involvement in student activities, and the practical background of co-op and internship experience. We believe that emphasizing these areas will make our students well qualified to take leadership roles in the future. We also have a strong post graduate program in mechatronics engineering.

FACULTY OF MEXHATRONICS ENGINEERING

- ***Engr. Dr. Aqib Mashood Khan***

Assistant Professor (HEC Approved Supervisor)

Chairman

PEC Reg No.: Mechatro/01465

Ph.D. Mechanical Manufacture and Automation
Nanjing University of Astronautics and Astronautics (NUAA), Nanjing, China

M.Sc. Industrial and Manufacturing Engineering
University of Engineering & Technology, Taxila, Pakistan

B.Sc. Mechatronics Engineering
University of Engineering & Technology, Taxila, Pakistan

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- ***Dr. Waheed Ur Rehman***

Assistant Professor (HEC Approved Supervisor)

PEC Reg No.: Mechatro/00998

Post Doctorate in Mechatronics Engineering
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Ph.D. Mechanical Engineering
Chongqing University, Chongqing, China

M.Sc. Mechatronics Engineering
Beijing University of Aeronautics and Astronautics, Beijing, China

B.Sc. Mechatronics Engineering
University of Engineering & Technology, Taxila, Pakistan

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- ***Dr. Sheraz Yaqub***

Assistant Professor

PEC Reg No.: Mechatro/01251

MS/MPhil leading to PhD Mechatronics Engineering
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B.Sc. Mechatronics Engineering
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- ***Engr. Sana Liaquat***

Lecturer

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Ph.D. Mechatronics Engineering(in-process)
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MS. Mechatronics Engineering
CEME NUST, Rawalpindi, Pakistan.

B.E. Mechatronics Engineering
Air University, Islamabad, Pakistan

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- ***Dr. Bushra Nawaz***

Lecturer

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MSc Telecom Engineering
University of Engineering & Technology, Taxila, Pakistan

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- ***Engr. M. Arqum Razzaq***

Lecturer

PEC Reg No.: Mechatro/1007

Ph.D. Mechatronics Engineering (In Progress)
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M.Sc. Mechatronics & Control Engineering
University of Engineering & Technology, Lahore, Pakistan

B.Sc. Mechatronics Engineering
University of Engineering & Technology, Taxila, Pakistan

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- ***Engr. Ch Asad Abbas***

Lecturer

PEC Reg No.: Mechatro/01506

PhD Mechanical & Manufacturing Engineering, (In Progress)
Shandong University, Jinan, China

MS Mechatronics Engineering
Shandong University, Jinan, China

B.Sc. Mechatronics Engineering
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- **Engr. Muhammad Usama Farooq**

Lab Engineer

PEC Reg No.: Mechatro/01692

Ph.D. (in-process)

M.Sc. Mechatronics Engineering
De Montfort University, United Kingdom.

B.E. Mechatronics Engineering
Air University, Islamabad, Pakistan.

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- **Engr. Bilal Ahmed**

Lab Engineer

PEC Reg No.: Mechatro/01276

M.Sc. Mechanical Engineering
University of Engineering & Technology, Taxila, Pakistan

B.Sc. Mechatronics Engineering
University of Engineering & Technology, Taxila, Pakistan

✉ bilal.ahmed@uoc.edu.pk

Departmental Vision & Mission

Vision

A multidisciplinary quality educational and research-oriented department to solve modern engineering problems, and fulfill the domestic and global industrial and societal needs. To be a quality conscious institution of international standing imparting knowledge in the field of engineering and emerging technologies in a caring environment for the socioeconomic development of the country.

Mission

To produce engineers with life-learning skills and in-depth engineering knowledge which enable them to resolve issues pertaining to academia and industry through research tools and innovation for the sustainable development of society.

Life at UOC

As a student, campus life means there's a lot of hard work - but it's also rewarding. In addition to classes, there are inspiring friends and student organizations, as well as events and a variety of new experiences. In the end, you'll be enriched by what happens outside your class schedule.

Events and Entertainment

With an Event Calendar full of attractions such as Spring Festival, Sports Gala, Embedded Systems Expo, Olympiad, Poster Competition brings excitement to Campus Life. The campus located right at the heart of Chakwal City offers plenty of places to eat and hang out with friends such as Pehalwan Reweri, Nisar Hotel, Emporium, Royal Archard, Shanwari, PFC. Kallar Kahar and Katas Raj are just a couple of places where you can enjoy nature, there's also the Chakwal Community Center, where you can take in an outdoor concert. And then there's Food Valley, the best bash in Chakwal. Activities include everything from Table Tennis and Badminton to Football and Cricket. Just keep your eye on Campus Media Pages, for upcoming events.

Organizations and Recreation

Join one of many Departmental and Professional Organizations to network in your major and gain experience in real-world career settings. There are more than 6 student organizations to choose from ranging from Mechatronics Club to Environmental Protection Society, so there's likely something to pique your interest. We'll even help you start your own group. The Campus Sports Committee offers plenty of opportunities to get fit, be competitive, and even show off that jump shot. Or maybe you want to push your mind and body with lessons in Athletics and Sports. You can do it all.

Housing and Dining

The more than 400 students who live in Hostel can't be wrong—residence life is great at UOC Chakwal. Campus Cafe offers excellent with high quality food and drinks, where everything is available at any time. Committee Park is the frivolous place for freshening your mind. The Campus allows freshmen to make friends and a smoothly adjust to college life through common programming. Whether it's because they have a great study circle or a great circle of friends, students who live on campus get better grades and are more likely to graduate on time.

All our

Dreams

can come true

if we have the

Courage

to pursue them

EXPLORE

Past Student Activities

Event # 1 Industrial Visit to Mangla Dam

(Oct 25, 2022)

Students of Mechatronics Engineering department went to Mangla Dam on 25 Oct, 2022 on an Industrial visit by the University. The purpose of the trip was to create awareness among students about how the electricity is generated from the water in the dam. This report details different stages of electricity generation at Mangla Dam. The Mangla Dam is a multipurpose dam situated on the Jhelum River in the Mirpur District of Kashmir. According to **Victor Mochere,** it is the sixth-largest dam in the world. The scheme was designed by London firm Binnie and Partners, led by engineer Geoffrey Binnie, an ICE Fellow.

Event # 2 Industrial Visit to DAT Research Lab Jajja (Oct 31, 2022)

A one-day trip was organized by Mechatronics Department (MCT) and Electronics Department (ECT) of University of Chakwal (UOC) to DAT Jajja for 2020 session under the supervision of two honorable faculty members of Engineering Department viz:

- Engr. Usama Farooq (Lab Engineer MCT)
- Engr. Aneeqa Fakhar (Lab Engineer ECT)

The visit included a tour of the research lab, lecture on the whole process, and a tour of the facility where assembly of parts is done. The tour began at 8:30 am and reached the DAT Lab at about 10:30 a.m., first the discussion about the signals and analysis was done. Students visited many new and updated labs.

Event # 3 IEE WIE (10 November, 2022)

It was a two-day trip organized by Mechatronics department (MCT) and Electronics department (ECT) of University of Chakwal (UOC) held in Government college university (GCU) about IEEE WIE's under the supervision of two faculty members

- Dr. Asim Quddus
- Engr Aneeqa Fakhar

This event tracks Artificial intelligence, Big Data, STEM projects, Meta verse, Inspirational Talks, Youth and leadership with diversity and inclusion, feed your Mind Ideas of success, not Failure, Women in leadership, Brain storming and content creation.

Event # 4 Expo-2022 (10 November, 2022)

A one-day expo was attended by students of Mechatronics Department (MCT) and Electronics Department (ECT) of University of Chakwal (UOC) under the supervision of honorable faculty members of Mechatronics Department viz:

- **Dr. Sheraz Yaqub (Assistant Professor MCT)**
- **Engr. Arqum Razzaq (Lecturer MCT)**

Projects were displayed and well explained by the students to the visitors and answered their queries in a professional way.

Event #5 Hi-tech Robotic Competition/ Robofiesta 5.0 (16 December, 2022)

A one-day trip was organized by Mechatronics Department (MCT) of University of Chakwal (UOC) to Hitech, Taxila for 2020 session. This one-day trip was full of knowledge and learning.

Projects and Participants

From Mechatronics Department of University of Chakwal there were three projects of two different categories competed in Robofiesta 5.0 are

- Dunhill (Sumo wrestler)
- Revenant (Sumo wrestler)
- Seer (Line Tracking)

Event # 6 Heavy Mechanical Complex Taxila (December, 2022)

The Department of Mechatronics Engineering organized a study tour to Heavy Mechanical Complex (HMC) Taxila on September 07, 2022 for the students of Engineering Department (2021) under the supervision of senior faculty members. HMC offers in-house facilities including Designing, Fabrication, Machining, Iron and Steel Castings, Forgings, Heat Treatment, Assembly, Sand Blasting, Painting and Galvanizing etc. The students experienced the practical application of theoretical concepts of manufacturing industry. During visit to industry, they got a tour of the Power Plant and Fabrication Shops. Further students also learned about Welding and some basic principles of machining. Students also visited main shops and learned about Design & Engineering, Machining, Forging, Heat Treatment, Hydraulic Press techniques. HMC works on various projects related to Cement plants, Boilers, oil and gas Sector, Steel Structures, Overhead bridges, Cranes and Hydel Plants. Students have learnt a lot and enjoyed their study tour.

Students Departmental Societies & Clubs

There are 10 clubs and societies that empowers students to explore their areas of interest and attain their full potential. UOC offers endless sporting opportunities with a wide range of sports and activities that help groom individual's personalities, polish their skills, provide unlimited exposure to standing out more distinguished in the outside world. We assist you discover your hidden talents and provide you a platform to hone them.

- Sports Society
- Science & Research Society
- Dramatic Society
- Envoi mental Society
- Debate Society
- Arts Society
- Qirat & Naat Society
- Character Building society
- Inventive robotics club
- Media Club

Faculty / Staff Departmental Committees

- Program committee (OBE committee)
  - Convener: Dr. Aqib Mashood Khan
- Subject committee (CQI committee)
  - Convener: Dr. Waheed Ur Rehman
- Evaluation and Assessment
  - Convener: Dr. Sheraz Yaqub
- Disciplinary committee
  - Convener: Dr. Aqib Mashood Khan
- Labs Equipment Procurement Committee
  - Convener: Engr. Bilal Ahmad
- Laboratory Equipment Technical Inspection
  - Convener: Dr. Aqib Mashood Khan
- Research Committee
  - Convener: Dr. Aqib Mashood Khan
- Health and safety committee
  - Convener: Dr. Aqib Mashood Khan
- In-Charge Departmental Examination
  - Convener: Engr. Arqum Razzaq
- Program Coordinator
  - Convener: Dr. Waheed Ur Rehman
- Departmental PEC Coordinator
  - Convener: Dr. Waheed Ur Rehman
- Career Counselor and Educational Advisor
  - Convener: Dr. Aqib Mashood Khan
- Final year Design Project (FYDP) Committee
  - Convener: Dr. Aqib Mashood Khan
- Focal person for website and prospectus
  - Convener: Engr. Sana Liaquat
- Industrial Advisory Board (IAB)
  - Convener: Dr. Aqib Mashood Khan
- Members in Board of Studies (BoS)
  - Convener: Dr. Aqib Mashood Khan
- Semester committee
  - Convener: Dr. Bushra Nawaz
- Departmental Quality Enhancement Cell (DQEC)
  - Convener: Engr. Arqum Razzaq
- Academic Cell
  - Convener: Dr. Bushra Nawaz

FACULTY ACTIVITIES

SEERAT CONFRENCE

Seerat-e-Nabi conference was organized by University of Chakwal on October 17, 2022 at 10 AM in Sethi Hall. Guest speakers were Dr. Allama Muhammad Ashfaq Jalali and other well-known Islamic scholars.

International Conference on Bridging the Industry - Academia Gap for Sustainable Development in Pakistan

International Conference was held on January 4th, 2023 by University of Chakwal at Elegance Marque, Talagang Road Chakwal on “Bridging the Industry - Academia Gap for Sustainable Development in Pakistan”. Patron In Chief Prof. Dr. Mohammad Bilal Khan, Senior Fellow NUST, Pakistan and Vice Chancellor of University of Chakwal, Punjab Pakistan.

It was organized by Dr. Freeha Azmat Associate Professor University of Warwick, UK, Senior Fellow, Higher Education Academy, UK. Keynote Speakers were Dr. Kim Emerson Stansfield, founder and director VoCATE Ltd, UK and Professor Fernando Colmenares, The Cooperation University of Colombia.

5th Generation war

Seminar was arranged on 5th generation war in University of Chakwal on November 14, 2022 in Sethi Hall. Purpose of seminar was to create awareness in students about the technology and how they can compete the world. Seminar was attended by the Head of Departments, Faculty and students

Student role in nation building

The university of Chakwal arranged a seminar on “Role of Students in Nation Building” at 11;40 AM on 15th December 2022 in university Sethi Hall. It was attended by the Heads of Departments, faculty and students. The Purpose of seminar was to create awareness in students about how they can play a role in nation building.

Study abroad in Germany

Awareness session has been organized by University of Chakwal with team of Global Study Experts for the students to guide them about the scholarships for higher studies in Germany and other European Countries.

Ali Baba digital training program (GTP)

Ali Baba Global digital training program worth thousands of US dollars which is given by Ali Baba freely to University of Chakwal by special efforts of the office of Research, Innovation and Commercialization (ORIC). Alibaba signed an agreement with university of Chakwal to train 25 candidates as Alibaba certified trainers through Alibaba online train teacher program (OTT). The program started on 1st November 2022 and ended on January 5th, 2023 with the main stream of Digital transformation and Digital Entrepreneurship. University of Chakwal has the privilege of being the only university with whom Alibaba group has signed the agreement.

14 August Independence Day

University of Chakwal (UOC) celebrated the 75th Anniversary / Diamond Jubilee of Pakistan's Independence Day with great zeal. The ceremony was attended by Vice Chancellor Prof. Dr. Muhammad Bilal Khan, Registrar Prof. Sada Hussain, all HOD's, faculty members and teachers. Addressing the ceremony, Vice Chancellor Prof. Dr. Muhammad Bilal Khan said that "To protect and wisely use our national assets is our prime responsibility; he further added "Pakistan is our identity and it's a day to fulfill our commitments to this motherland'' and "Every one of us should own Pakistan and everybody performing his/her duties honestly.'' He stressed the importance of character building in the new generation because a nation without ethical values and character cannot value its independence. He said that young students are the future of this country and they should use their full potential for the progress of the country. We must look into the past, to get lesson but also move forward for better and prosperous Pakistan, he added.

University of Wah

University of Wah organized 2nd UW – POFs Joint Conference on Academia's collaboration with industrial organizations (CACIO-2022) on 14-15 December, 2022 at POFs guest house, Wah. This conference was attended by the Mechatronics Engineering faculty members. The speakers were from industrial and academia background.

OBE for student

OBE workshop was arranged for students of Mechatronics Engineering Department on 02-11-2022 from 10 AM to 11 AM in MCT Lecture Theatre# 1. The workshop was conducted by Dr. Asim Quddus, Assistant Professor Electronics Engineering Department University of Chakwal.

OBE for faculty

One day workshop on Outcome Based Education has been organized by Head of Department Mechatronics Engineering Department Dr. Bushra Nawaz for Engineering faculty on 26th July 2022. In order to keep engineering program accredited with PEC, a one-day workshop on OBE system is arranged to give awareness of OBE to faculty members of all Engineering Departments. Guest speaker of conference was Prof. Dr. Mirza Jahanzaib. Another OBE training was organized by Head of Mechatronics Engineering Department Dr. Aqib Mashood Khan on December 22nd, 2022 in Seminar Hall, which was attended by all engineering faculty. Guest speaker of conference was Dr. Saif Ullah Associate Professor Industrial Engineering Department, UET Taxila.

Minister and DC interaction with HOD

University of Chakwal has organized the interaction session for faculty with Minister for Higher Education Punjab Raja Yassir Humayon Sarfraz Khan and Deputy Commissioner Dr. Zeeshan Hanif on November 7, 2022. The Chief guest Minister for Higher Education Punjab Raja Yassir Humayon Sarfraz Khan appreciated the Vice Chancellor, faculties, and administration for their efforts to shape the university according to the vision envisaged by him. He pledged his continued support for making UOC as a hub of

digital tech in the entire division and in the whole country eventually.

Conference on Tourism

Seminar was held on tourism in Mechatronics Engineering Department. Ms. Asia Gul Secretary Tourism, Punjab was the guest speaker. Seminar was attended by Head of Department and faculty members. Purpose of this seminar was to create awareness about the tourism in Chakwal discuss ways to promote tourism in city of Chakwal.

Skill competition 1122

A total of 13 teams from Chakwal City participated, and the University of Chakwal team, led by Talha Mehtab and under the guidance of DSA Azmat Ali Minhas, secured the first position. It is an honor to share that they made us proud with their achievement.

PRIDE MOMENT FOR UNIVERSITY OF CHAKWAL AND MECHATRONICS ENGINEERING

Chairman of Mechatronics Engineering department is listed in the top 2% scientists of entire world. Dr. Aqib Mashood Khan was born in 1990 and graduated with a Ph.D. in Mechanical Manufacture and Automation from Nanjing University of Aeronautics and Astronautics (NUAA). Currently, he is an assistant professor and chairman of mechatronics engineering at the University of Chakwal (UOC). During his three years of Ph.D., he mainly focused on “sustainable machining of aerospace alloys”. He has been awarded an “Outstanding Student Award” by NUAA for his excellent performance and for proposing a novel method of machining aerospace alloys. Dr. Khan was also nominated for the best foreigner-student award at Higher Education Expo CHINA (HEEC). He worked with Chengdu Aerospace company, and he was also part of the team that developed the state-of-the-art J-10C and C919. He has published more than 100 SCI papers in the last decade and his research outcomes were cited 2150+ times by international scholars. He possesses Google Scholar h-index 27 and i10 Index (53). Ranked by Stanford University, USA.

Labs & other facilities

CAD and Simulation Lab

This lab offers computer facilities that can be used by students for developing model of real systems and testing of these systems by simulation.

Robotics and Automation Lab

Students get hands on experience on PLCs, Industrial Robots and CNC Machines.

Mechanics

Mechanics is very important for motion-controlled systems like Robots and CNC Machines. Conducting experiments on equipment present in lab students can test their projects for statics and dynamics.

Mechatronics System Design Lab

In this laboratory practical of various subjects are conducted like

i. **Electric Circuit Analysis**
ii. **Electronic circuits and devices**
iii. **Electronic circuit design**
iv. **Digital logic design**
v. **Microcontroller and Embedded system**

Instrumentation and Control Lab

This lab is equipped with interactive **sensor kits, Digital Oscilloscope, Magnetic Levitation system, Servo Mechanism Bridges, MIMO Twin Rotor System and Actuators.**

Workshop

The laboratory covers the scope of courses like Workshop Practice, Machine Tools and Manufacturing Processes. and other operations is performed. Fabrication, furnishing, welding, grinding

Thermo-Fluids Lab

The purpose of this lab is to provide the students analytical skills to solve and analyze **Thermodynamics, Fluid Mechanics** related problems including Hydraulic and Pneumatic systems. Topics include **fluid properties, flow types**, **flow through pipes.**

"Success is not final;
failure is not fatal:
It is the courage to
continue that counts."

(Winston S. Churchill)

STRIVE FOR EXCELLENCE

Technical Sessions

Successful Students

Here are 15 common characteristics of successful students:

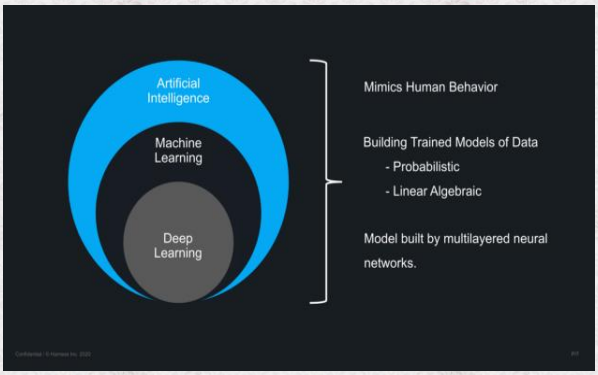
1. Positive Attitude: They have a positive outlook on life and approach challenges with optimism and determination.
2. Strong Work Ethic: They are hard-working and committed to their goals.
3. Self-Discipline: They have the ability to control their impulses and prioritize their time effectively.
4. Goal-Oriented: They have clear goals and a plan to achieve them.
5. Perseverance: They don't give up easily and are able to bounce back from setbacks and failures.
6. Resilience: They have the ability to adapt to change and overcome challenges.
7. Time Management: They prioritize their time effectively and use it wisely.
8. Effective Communication: They are good listeners and able to communicate their ideas effectively.
9. Leadership: They have the ability to inspire and guide others towards a common goal.
10. Continuous Learning: They are lifelong learners and are always looking to improve and expand their knowledge and skills.
11. Networking: They build strong relationships and network with others to achieve their goals.
12. Confidence: They have faith in their abilities and are comfortable taking risks.
13. Creativity: They think outside the box and find innovative solutions to problems.
14. Collaboration: They work well with others and value teamwork.
15. Gratitude: They are thankful for what they have and maintain a positive outlook on life.

It's important to note that success means different things to different people, and these characteristics may not apply to everyone. However, these traits are commonly found in successful individuals and can be developed with practice and perseverance.

Artificial Intelligence (AI) & Robotics: AI

Artificial Intelligence is defined as the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. AI is also defined as,

- An Intelligent Entity Created By humans
- Capable of Performing Tasks intelligently without being explicitly instructed.
- Capable of thinking and acting rationally and humanely.



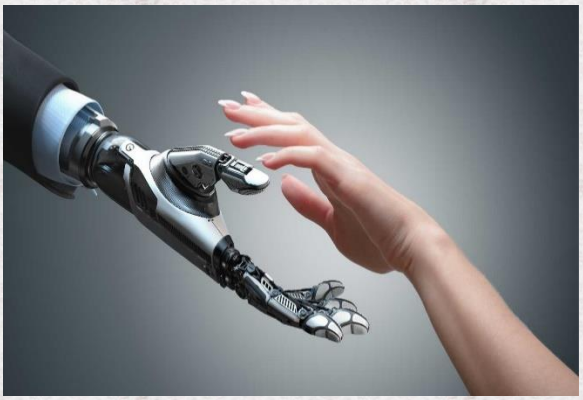
A layman with a fleeting understanding of technology would link it to robots. They'd say Artificial Intelligence is a terminator like-figure that can act and think on its own.

If you ask about artificial intelligence an AI researcher, (s)he would say that it's a set of algorithms that can produce results without having to be explicitly instructed to do so. The intelligence demonstrated by machines is known as Artificial Intelligence. Artificial Intelligence has grown to be very popular in today's world. It

is the simulation of natural intelligence in machines that are programmed to learn and mimic the actions of humans. These machines are able to learn with experience and perform human-like tasks. As technologies such as AI continue to grow, they will have a great impact on our quality of life. It's but natural that everyone today wants to connect with AI technology somehow, may it be as an end-user or pursuing a career in Artificial Intelligence.

Robotics

Robotics is a branch of engineering and science that includes electronics engineering, mechanical engineering and computer science and so on. This branch deals with the design, construction, use to control robots, sensory feedback and information processing. These are some technologies which will replace humans and human activities in coming years. These robots are designed to be used for any purpose but these are using in sensitive environments like bomb detection, deactivation of various bombs etc. Robots can take any form but many of them have given the human appearance.



The robots which have taken the form of human appearance may likely to have the walk like humans, speech, cognition and most importantly all the things a human can do. Most of the robots of today are inspired by nature and are known as bio-inspired robots. Robotics is that branch of engineering that deals with conception, design, operation, and manufacturing of robots. There was an author named Issac Asimov, he said that he was the first person to give robotics name in a short story composed in 1940's. In that story, Issac suggested three principles about how to guide these types of robotic machines. Later on, these three principals were given the name of Issac's three laws of Robotics. These three laws state that:

- Robots will never harm human beings.
- Robots will follow instructions given by humans with breaking law one.
- Robots will protect themselves without breaking other rules.

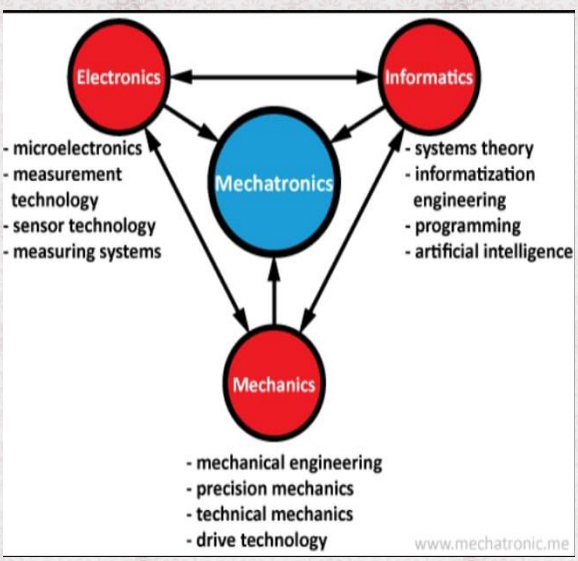
Robotics and artificial intelligence: a bright future.

Robotics and artificial intelligence are two related but entirely different fields. Robotics involves the creation of robots to perform tasks without further intervention, while AI is how systems emulate the human mind to make decisions and 'learn.' While you can have robotics with an AI element (and vice versa), both can, and usually do, exist independently of each other. For most robots, designed to perform simple, repetitive tasks, there's no need for advanced AI as the duties are simple, predictable and pre-programmed. But many such AI-free robotics systems were created with past limitations of artificial intelligence in mind, and as the technology continues to advance in leaps and bounds each year, robotics manufacturers may feel increasingly confident in pushing the limits in what can be achieved by marrying the two disciplines. The cited examples of AI in manufacturing, aerospace, healthcare and agriculture highlighted above can certainly leave us feeling confident that the future is bright for robotics and artificial intelligence. The next big innovation may feel like science fiction today, but eminently possible tomorrow.

Advancement in mechatronics

Mechatronics engineering also called mechatronics, is an interdisciplinary branch of engineering that focuses on the integration of mechanical, electrical and electronic engineering systems, and also includes a combination of

robotics, electronics, computer science, telecommunications, systems, control, and product engineering.



Important aspects of designing advanced mechatronic products include modeling, simulation, analysis, virtual prototyping, and visualization. Competition on a global market includes the adaptation of new technology to produce better, cheaper, and smarter, scalable, multifunctional goods.

Simple 3-D printable open-source hardware designs have proven to be effective scientific instruments at low costs. Further development in this area is coupling open-source electronics with 3-D printable mechanical components to make fully functional distributed-manufactured mechatronic tools for science. One research area where such low-cost technology is needed is to characterize thin film anti-reflective coatings and transparent conducting oxides (TCOs) for the glass and mirror.

Recently, in most of the developing countries like Tanzania, life expectancy and the inherent costs of caring for an aging population are increasing. These have put an enormous demand on the health care systems and have driven the advancement of technology-based sensor devices that can remotely monitor key vital life signs. These advancements enabled proliferation of wireless sensor networks. These sensor networks are capable of monitoring and controlling environments remotely.

Aircraft Painting process recovers from many problems associated with the entire painting activities, such like efficiency, cost, environmental factors, and risks to the painting labors (contaminations, fumes, flammability, toxicity). This research is to provide conceptual design and implement optimum solution to the problems mentioned above by using the automation techniques (PLC tool) to devolve a first phase painting robot .Considering the use of sensors (object sensors , proximity or collision avoidance system) and actuators (DC servo driver to provide motions) plus some control devices(limit switches) .All these part encapsulated in a mechanism containing two spray guns fitted in a spray board with the sensors and actuators moving in the three dimensions around the aircraft sides. The control of this mechanism is achieved by using the Programmable Logic Control PLC SIEMENS S7-200 micro automation products using ladder diagram, to control motions in both spray board and the holding arm.

Staff

- **Mr. Sohaib Raza**

  Lab supervisor
- **Mr. Kashif Bilal**

  Lab supervisor
- **Mr. Shahid Shabbir**

  Naib Qasid
- **Mr. Zeeshan Ali**

  Lab attended
- **Mr. Aitzaz Abbas**

  Junior clerk
- **Mr. Arshad**

  Lab attended

SUCCESS IN MECHATRONICS

Sr.	Name	B.Sc.	MS	Current Job	Job Title	Salary
1.	Engr. Waqas Tanveer	Mechatronics 2009-2013	Mechanical Engineering Uet Taxila	State Bank of Pakistan	Senior Ad/ Site Support Engineer	300,000+ Pkr
2.	Umer Farooq	Mechatronics Uet Chakwal Campus (2009-2013) CGPA 2.75	Control System Nuaa	Dahua International	Cctv /Security Camera	1500$ Usd
3.	Muhammad Imran Javed	Mechatronics Uet Chakwal Campus (2009-2014)	Mechatronics Engineering	Masood Textile Mill	Deputy Manager Maintenance	120k + Pkr
4.	Shoaib Malik	Mechatronics Uet Chakwal Campus (2009-2013)	Mechatronics Engineering Ned Uet Karachi	Pak Navy	Marine Engineer	180000+ Pkr
5.	Muhammad Roman Aslam	Mechatronics Uet Chakwal Campus (2010-2014)	Mechatronics Engineering	Project Managment Unit, Primary & Secondary Healthcare Department, Government of Punjab	Asst. Admin Officer	50k Pkr
6.	Aamir Javed	. Mechatronics Uet Chakwal Campus (2010-2014)	Mechatronics Engineering	Samsung	Production Manager	150k Pkr
7.	Ali Hassan	Mechatronics Uet Chakwal Campus (2011-2015)	MPCL	--	Rig Engineer	150k Pkr
8.	Waqas Hussain Hashmi	Mechatronics Uet Chakwal Campus (2011-2015)	--	Mechanical Engineer Australia (Perth)	Mechanical Engineer Maintenance	700000 Pkr/ Month
9.	Syed Ali Imran	Mechatronics Uet Chakwal Campus (2011-2015)	--	Hp 3d Barcelona	Technical Support Engineer	Salary: 500k + /Month
8.	Khawar Mushtaq	Mechatronics Uet Chakwal Campus (2009-2013)	Applied Mechanics and Design	Sprint Oil and Gas	Field Engineer	300,000+ Pkr/ Month
9.	M. Ammar Yasir	Mechatronic Uet Chakwal (2010-2014)	--	Sk Ecoplant	Commission Engineer	500,000 Pkr
10.	Muhammad Saqib	Mechatronics Engineering, Uet Chakwal	Mechanical Engineering, Tianjin University, China	Pix Moving, Autonomous Industry Manufacturing Various Types of Agvs	Robotics Engineer, Mainly Focusing on Algorithm Design for Path Planning	16k Rmb (500,000 Pkr)

Future Plans

- Engineering Departments transferring to Balkasar Campus.
- Procurement of new Laboratory equipment.
- Procurement of new Furniture.
- Hiring of new Faculty members.
- New facilities and accruing Level-2 accreditation.

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